SAMTRON
Monitor

Install drivers

>> Windows Me Windows 98

>> Windows 2000 Windows XP

SAMTRON 94V

Please read the following safety instructions as they are designed to prevent damage to property and harm to the user.

Warning / Caution

Failure to follow directions noted by this symbol could result in bodily harm or damage to equipment.

Notational Conventions

Prohibited	Important to read and understand at all times
Do not disassemble	Disconnect the plug from the outlet
Do not touch	Grounding to prevent an electric shock

Power

When not used for extended period of time, set your computer to DPMS.

If using a screen saver, set it to the active screen mode.

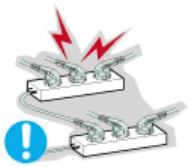
Do not use a damaged or loose plug.

- This may cause an electric shock or fire.

- **Do not pull the plug out by the wire nor touch the plug with wet hands.**
  - This may cause an electric shock or fire.

- **Use only a properly grounded plug and receptacle.**
  - An improper ground may cause electric shock or equipment damage.

- **Do not excessively bend the plug and wire nor place heavy objects upon them, which could cause damage.**
  - Failure to do so may cause an electric shock or fire.



- **Do not connect too many extension cords or plugs to an outlet.**
  - This may cause fire.

Installation

Be sure to contact an authorized service center, when installing your monitor in a location with the heavy dust, high or low temperatures, high humidity, chemical substance and where it operates for 24 hours such as the airport, the train station or etc.

Failure to do so may cause a serious damage to your monitor.

- **Put your monitor in a location with low humidity and a minimum of dust.**
  - Failure to do so may cause an electric shock or fire inside the monitor.

- **Do not drop the monitor when moving it.**
  - This may cause damage to the product or human body.

- **Install the monitor base in a showcase or shelf so that the end of the base does not project beyond the showcase or shelf.**

- Dropping the product may cause damage to the product or personal injury.

Set down the monitor carefully.

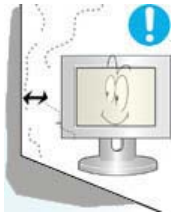
- The monitor could be damaged or broken.

Do not place the monitor face down.

- The TFT-LCD surface may be damaged.

Installing a wall bracket must be done by a qualified professional.

- Installation by unqualified personnel may result in injury.
- Always use the mounting device specified in the owner's manual.



Install the product keeping a distance of 10 cm from the wall for ventilation purposes.

- An overheated product may catch fire.

Clean

When cleaning the monitor case or the surface of the TFT-LCD screen, wipe with a slightly moistened, soft fabric.

Do not spray water or detergent directly on the monitor.

- This may cause damage, electric shock or fire.

Use the recommended detergent with a smooth cloth.

If the connector between the plug and the pin is dusty or dirty, clean it properly with a dry cloth.

- A dirty connector can cause an electric shock or fire.

Contact the Service Center or Customer Center for interior cleaning once a year.

- Keep the product's interior clean. Dust which has accumulated in the interior over an extended period of time may cause malfunction or fire.

Other

Do not remove cover (or back).

- This may cause an electric shock or fire.
- Refer servicing to qualified service personnel.

If your monitor does not operate normally - in particular, if there are any unusual sounds or smells coming from it - unplug it immediately and contact an authorized dealer or service.

- This may cause an electric shock or fire.

Be careful not to let water drip into the monitor or expose the monitor to moisture.

- This may cause malfunction, an electric shock or fire.
- Especially avoid operating the monitor near water or outdoors where it could be exposed to snow or rain.

If the monitor is dropped or the casing is damaged, turn the monitor off and unplug the power cord.

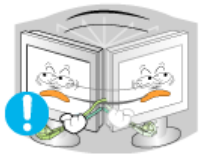
- The monitor may malfunction, causing an electric shock or fire.
- Then contact the Service Center .

Keep the power off when there is thunder and lightening outside, or let the monitor remain unused for an extended period of time.

- The monitor may malfunction, causing an electric shock or fire.

Do not try to move the monitor by pulling only the wire or the signal cable.

- This may cause a breakdown, electric shock or fire due to damage to the cable.



- **Do not move the monitor right or left by pulling only the wire or the signal cable.**
  - This may cause a breakdown, electric shock or fire due to damage to the cable.

- **Do not cover the vents on the monitor cabinet.**
  - Bad ventilation may cause a breakdown or fire.

- **Do not place water containers, chemical products or small metal objects on the monitor.**
  - This may cause malfunction, an electric shock or fire.
  - If a foreign substance enters the monitor, unplug the power cord and contact the Service Center .

- **Do not use or store inflammable substances near the monitor.**
  - This may cause an explosion or fire.

- **Never insert anything metallic into the monitor openings.**
  - This may cause an electric shock, fire or injury.

- **Do not insert metal objects such as chopsticks, wire and gimlet or inflammable objects such as paper and match into the vent, headphone port or AV ports.**
  - It may cause a fire or an electric shock. If an alien substances or water flows into the product, turn the product off, unplug the power connector from the wall outlet and contact service center.

- **If you view a fixed screen for an extended period of time, residual image or blurriness may appear.**
  - Change the mode to energy save or set a screensaver to moving picture when you need to be away from the monitor for an extended period of time.

- **Adjust the resolution and frequency to the levels appropriate for the model.**
  - Inappropriate resolution may cause undesirable picture quality.

    19 inch - 1280 X 1024

- **Watching the monitor continuously at a too close angle may result in eyesight damage.**

- **To ease eye strain, take at least a five-minute break after every hour of using the monitor**.

- **Do not install the product on an unstable, uneven surface or a location prone to vibrations.**
  - Dropping the product may cause damage to the product or personal injury. Using the product in a location prone to vibrations may shorten the lifetime of the product or may catch fire.

- **When moving the monitor, turn the power switch off and unplug the power cord.**
  Make sure that all cables, including the antenna cable and cables connected to other devices, are disconnected before moving the monitor.
  - Failure to disconnect the cable may damage it and lead to fire or an electric shock.

Please make sure the following items are included with your monitor.
If any items are missing, contact your dealer.

Unpacking

Monitor

Monitor

Manual

Quick Setup Guide

Warranty Card

User's Guide, Monitor Dirver

Cable

Front

1.	**Menu button [▥]**	Use this button for open the on-screen menu and exits from the menu screen or closes screen adjustment menu.
2,4.	**Adjust buttons [▼/▲]**	Adjust items in the menu.
3.	**Power button [⏻] / Power indicator**	Use this button for turn the monitor on and off./ This light glows green during normal operation, and blinks green once as the monitor saves your adjustments.
4.	**Brightness button [☼]**	When OSD is not on the screen, Push the button to adjust brightness.
5.	**Enter button [↵]/ Auto button**	Activates a highlighted menu item. / Use this button for auto adjustment.

Note

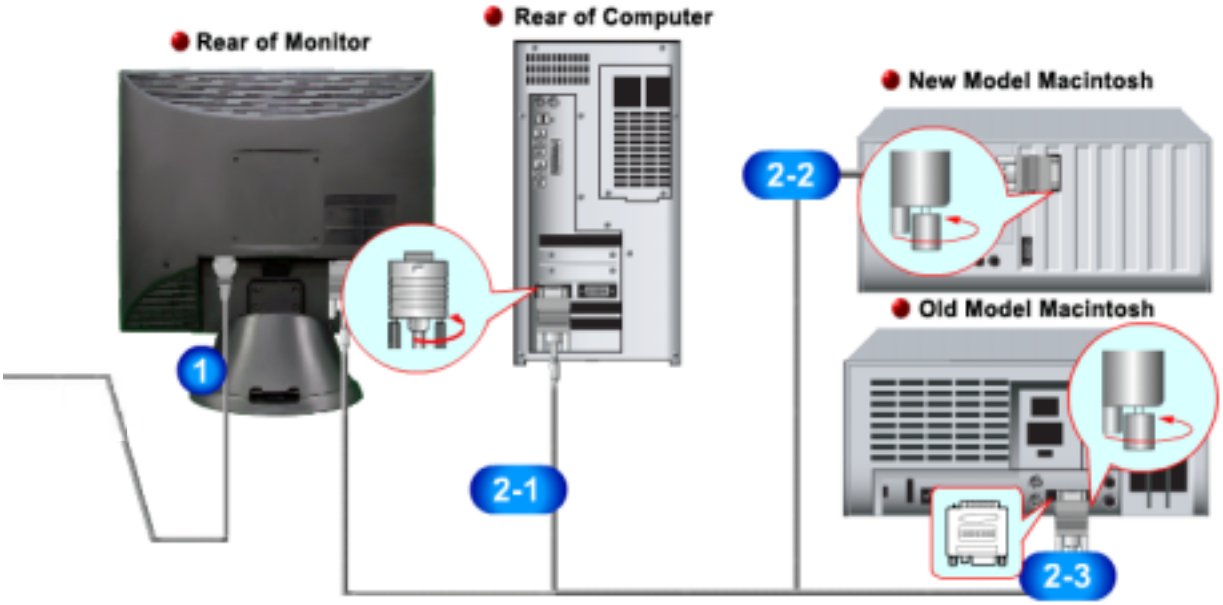
See PowerSaver described in the manual for further information regarding power saving functions. For energy conservation, turn your monitor OFF when it is not needed, or when leaving it unattended for long periods.

Rear

(The configuration at the back of the monitor may vary from product to product.)

1.	**Power port**	Connect the power cord for your monitor to the power port on the back of the monitor.
2.	**D-sub 15-pin port**	Connect the signal cable to the 15-pin, D-sub connector on the back of your monitor.

Note See Connecting the Monitor for further information regarding cable connections.



1. Connect the power cord for your monitor to the power port on the back of the monitor.
Plug the power cord for the monitor into a nearby outlet.

2-1. Using the D-sub (Analog) connector on the video card.
Connect the signal cable to the 15-pin, D-sub connector on the back of your monitor.

2-2. Connected to a Macintosh.
Connect the monitor to the Macintosh computer using the D-SUB connection cable.

2-3. In the case of an old model Macintosh, you need to connect the monitor using a special Mac adaptor.

3. Turn on your computer and monitor. If your monitor displays an image, installation is complete.

Attaching a base

This monitor accepts a 100 mm x 100 mm VESA-compliant mounting interface pad.

A.Monitor
B.Mounting interface pad

1. Turn off your monitor and unplug its power cord.
2. Lay the LCD monitor face-down on a flat surface with a cushion beneath it to protect the screen.
3. Remove the four screws and then remove the Stand from the LCD monitor.
4. Align the Mounting Interface Pad with the holes in the Rear Cover Mounting Pad and secure it with the four screws that came with the arm-type base, wall mount hanger or other base.

Note **When prompted by the operating system for the monitor driver, insert the CD-ROM included with this monitor. Driver installation is slightly different from one operating system to another. Follow the directions as appropriate for the operating system you have.**

Prepare a blank disk and download the driver program file at the Internet web site shown here.

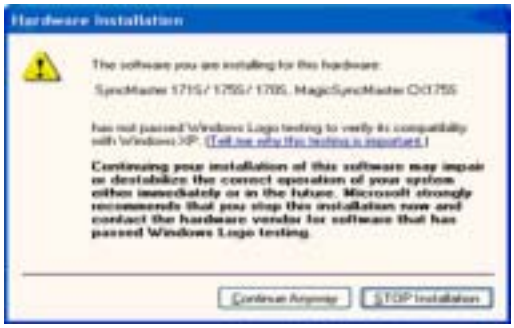
- Internet web site : http://www.samtron.com/

Windows XP/2000

1. Insert CD into the CD-ROM drive.
2. Click **"Windows XP/2000 Driver"**
3. Choose your monitor model in the model list, then click the **"OK"** button.

4. If you can see following **"Message"** window, then click the **"Continue Anyway"** button. Then

click **"OK"** button.


Hardware Installation
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

Note This monitor driver is under certifying MS logo,and this installation don't damage your system.The certified driver will be posted on Samsung Monitor Homepage http://www.samtron.com/

5. Monitor driver installation is completed.

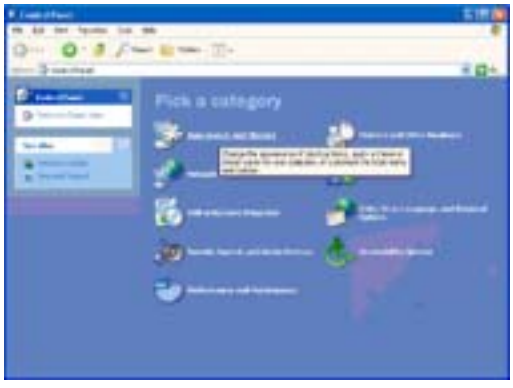
Note **When prompted by the operating system for the monitor driver, insert the CD-ROM included with this monitor. Driver installation is slightly different from one operating system to another. Follow the directions as appropriate for the operating system you have.**

Prepare a blank disk and download the driver program file at the Internet web site shown here.

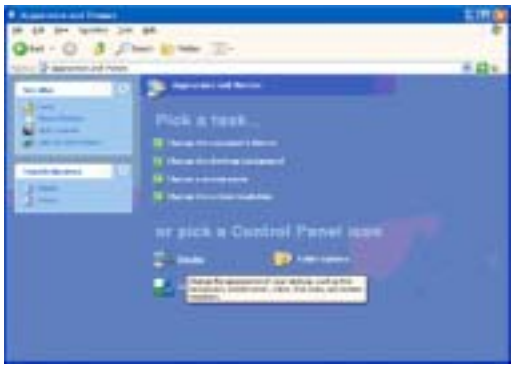
- Internet web site : http://www.samtron.com/

Microsoft® Windows® XP Operating System

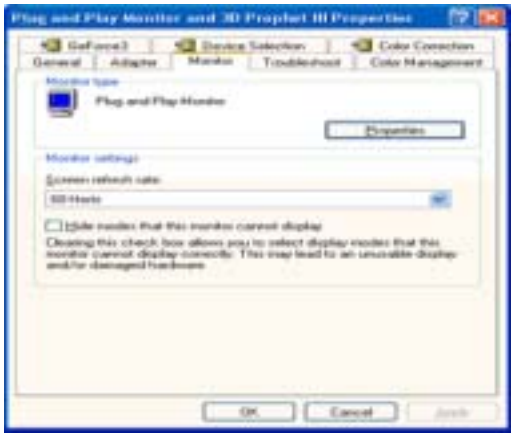
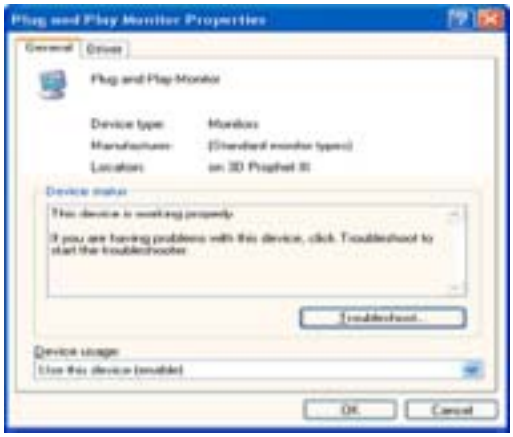
1. Insert CD into the CD-ROM driver.
2. Click "**Start**" —> "**Control Panel**" then click the "**Appearance and Themes**" Icon.



3. Click "**Display**" icon and choose the "**Settings**" tab then click "**Advanced..**".

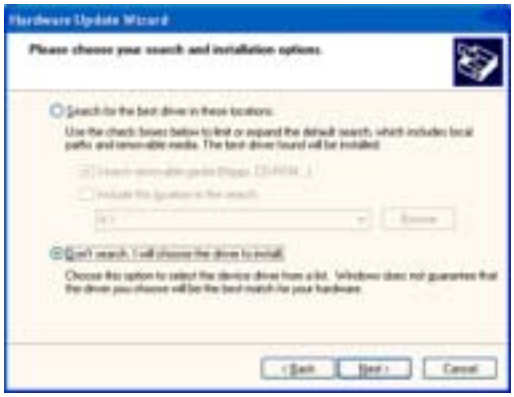


4. Click the "**Properties**" button on the "**Monitor**" tab and select "**Driver**" tab.

5. Click "**Update Driver..**" and select "**Install from a list or..**" then click "**Next**" button.

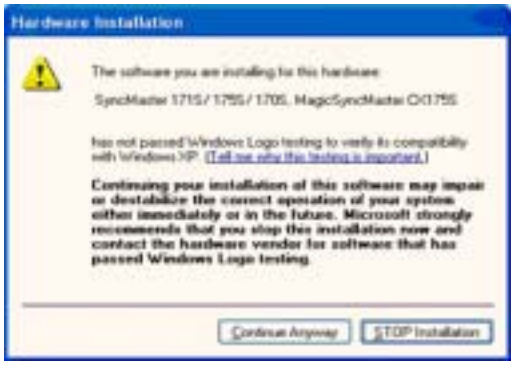
6. Select "**Don't search ,I will..**" then click "**Next**" and then click "**Have disk**".



7. Click the "**Browse**" button then choose A:(D:\Driver) and choose your monitor model in the model list and click the "**Next**" button.

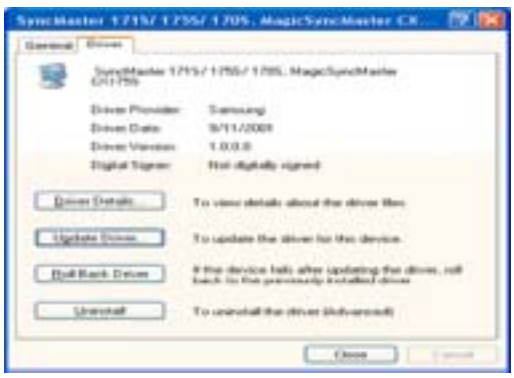
Install From Disk
Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below.
OK
Cancel
Copy manufacturer's files from:
Browse...

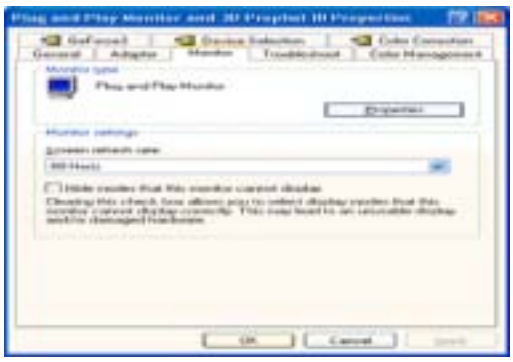
8. If you can see following "**Message**" window, then click the "**Continue Anyway**" button. Then click "**OK**" button.



This monitor driver is under certifying MS logo,and this installation don't damage your system.The certified driver will be posted on Samsung Monitor Homepage
http://www.samtron.com/

9. Click the "**Close**" button then click "**OK**" button continually.





10. Monitor driver installation is completed.

Microsoft® Windows® 2000 Operating System

When you can see "Digital Signature Not Found" on your monitor, follow these steps.

1. Choose "**OK**" button on the "**Insert disk**" window.
2. Click the "**Browse**" button on the "**File Needed**" window.
3. Choose A:(D:\Driver) then click the "Open" button and then click "**OK**" button.

How to install

1. Click "**Start**" , "**Setting**" , "**Control Panel**".
2. Double click the "**Display**" Icon.
3. Choose the "**Settings**" tab and then click "**Advanced..**".
4. Choose "**Monitor**".
   Case1: If the "Properties" button is inactive, it means your monitor is properly configured. Please stop installation
   Case2: If the "Properties" button is active, click the "Properties" button then follow next steps continually.
5. Click "**Driver**" and then click on "**Update Driver..**" then click on the "Next" button.
6. Choose "**Display a list of the known drivers for this device so that I can choose a specific driver**" then click "**Next**" and then click "**Have disk**".
7. Click the "**Browse**" button then choose A:(D:\Driver).
8. Click the "**Open**" button, then click "**OK**" button.
9. Choose your monitor model and click the "**Next**" button then click "**Next**" button.
10. Click the "**Finish**" button then the "**Close**" button.

    If you can see the "**Digital Signature Not Found**" window then click the "**Yes**"button. And click the "**Finish**" button then the "**Close**" button.

Microsoft® Windows® NT Operating System

1. Click **Start**, **Settings**, **Control Panel**, and then double-click **Display** icon.
2. In Display Registration Information window, click Settings Tab and then click **All Display Modes**.
3. Select a mode that you wish to use (Resolution, Number of colors and Vertical frequency) and then click **OK**.
4. Click **Apply** button if you see the screen working normally after clicking Test. If the screen is not normal, change to a different mode (lower mode of resolution, colors or frequency).

Note: If there is no Mode at **All Display Modes**, select the level of resolution and vertical frequency by referring to the Preset Display Modes in the user guide.

Linux Operating System

To execute X-Window, you need to make the X86Config file, which is a type of system setting file.

1. Press Enter at the first and the second screen after executing the X86Config file.
2. The third screen is for **setting your mouse**.
3. Set a mouse for your computer.
4. The next screen is for **selecting a keyboard**.
5. Set a Keyboard for your computer.
6. The next screen is for **setting your monitor**.
7. First of all, set a **horizontal frequency** for your monitor. (You can enter the frequency directly.)
8. Set a **vertical frequency** for your monitor. (You can enter the frequency directly.)
9. Enter the **model name of your monitor**. This information will not affect the actual execution of X-Window.
10. You have **finished** setting up your monitor.
    Execute X-Window after setting other requested hardware.

1. Opens the OSD menu. Also use to exit the OSD menu or return to the previous menu.
2. This buttons allows you to adjust items in the menu.
3. This buttons allows you to adjust items in the menu.
4. Press this button activates a highlighted menu item.

AUTO

Menu	Description
AUTO	When the '**AUTO**' button is pressed, the Auto Adjustment screen appears as shown in the animated screen on the center. Auto adjustment allows the monitor to self-adjust to the incoming video signal. The values of fine, coarse and position are adjusted automatically. To make the automatic adjustment function sharper, execute the 'AUTO' function while the AUTO PATTERN is on. • If Auto Adjustment does not work properly, press Auto button again to adjust picture with more accuracy. • If you change resolution in the control panel, Auto function will be executed automatically.

Brightness

Menu	Description
Brightness	Adjust Brightness.

1. Picture	Brightness	Contrast			
2. Color	Color Tone	Color Control	Gamma		
3. Image	Coarse	Fine	Sharpness	H-Position	V-Position
4. OSD	Language	H-Position	V-Position	Transparency	Display Time
5. Setup	Image Reset	Color Reset			
6. Information					

Picture

Menu	Description	Play/Stop
Brightness	Adjust the Brightness. **Direct Access Feature** : When OSD is not on the screen, Push the button to adjust brightness.	
Contrast	Adjust the Contrast.	

UP

Color

Menu	Description	Play/Stop
Color Tone	The tone of the color can be changed and one of four modes can be selected - Cool, normal, Warm and Custom.	
Color Control	Follow these steps to adjust individual R,G,B color balance.	
Gamma	Select one of three pre-defined gammas.	

UP

Image

Menu	Description	Play/Stop
Coarse	Removes noise such as vertical stripes. Coarse adjustment may move the screen image area. You may relocate it to the center using the Horizontal Control menu.	
Fine	Removes noise such as horizontal stripes. If the noise persists even after Fine tuning,	

	repeat it after adjusting the frequency (clock speed).	
Sharpness	Follow these instuction to change the clearance of image.	
H-Position	Follow these instructions to change the horizontal position of the monitor's entire display.	
V-Position	Follow these instructions to change the vertical position of the monitor's entire display.	

UP

OSD

Menu	Description	Play/Stop
Language	Follow these steps to change the language used in the menu. You can choose one of seven languages. (English, German, Spanish, French, Italian, Swedish, Russian) **Note**:The language chosen affects only the language of the OSD. It has no effect on any software running on the computer.	
H-Position	You can change the horizontal position where the OSD menu appears on your monitor.	
V-Position	You can change the vertical position where the OSD menu appears on your monitor.	
Transparency	Change the transparency of the background of the OSD.	
Display Time	The menu will be automatically turned if no adjustments are made for a certain time period. You can set the amount of time the menu will wait before it is turned off.	

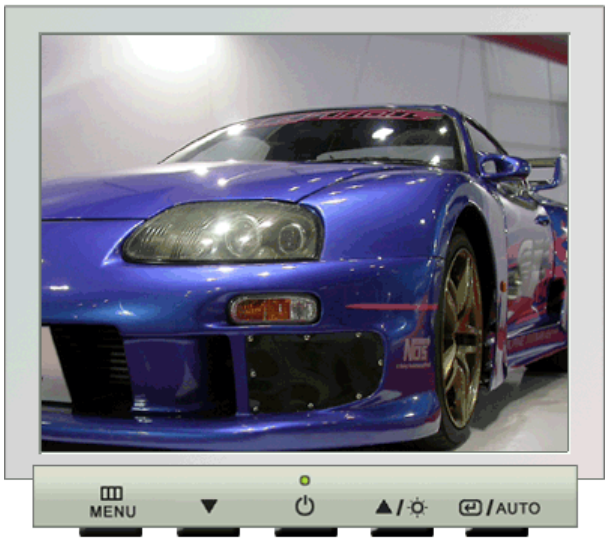
UP

Setup

Menu	Description	Play/Stop
Image Reset	Image parameters are replaced with the factory default values.	
Color Reset	Color parameters are replaced with the factory default values.	

UP

Information



Menu	Description
Information	Shows a video source, display mode on the OSD screen.

Note

Before calling for service, check the information in this section to see if you can remedy any problems yourself. If you do need assistance, please call, the phone number on the Information section or contact your dealer.

Symptom	Check List	Solutions
No images on the screen. I cannot turn on the monitor.	Is the power cord connected properly?	Check the power cord connection and supply.
	Can you see **"Check Signal Cable"** on the screen?	Check the signal cable connection.
	If the power is on, reboot the computer to see the initial screen(the login screen), which can be seen.	If the initial screen (the login screen) appears, boot the computer in the applicable mode (the safe mode for Windows ME/XP/2000) and then change the frequency of the video card. (Refer to the Preset Display Modes) Note: If the initial screen (the login screen) does not appear, contact a service center or your dealer.
	Can you see **"Not Optimum Mode" "Recommanded mode 1280 x 1024 60Hz"** on the screen?	You can see this message when the signal from the video card exceeds the maximum resolution and frequency that the monitor can properly handle. Adjust the maximum resolution and frequency that the monitor can properly handle. If the display exceeds SXGA or 75Hz, a "**Not Optimum Mode. Recommended mode 1280 x 1024 60Hz**" message is displayed. If the display exceeds 85Hz, the display will work properly but the "**Not Optimum Mode. Recommended mode 1280 x 1024 60Hz**" message appears for one minute and then disappears. Please change to the recommended mode during this one-minute period. (The message is displayed again if the

		system is rebooted.)
	There is no image on the screen. Is the power indicator on the monitor blinking at 1 second intervals?	The monitor is in PowerSaver mode. press a key on the keyboard to activate the monitor and restore the image on the screen.
The screen shows strange colors or just black and white.	Is the screen displaying only one color as if looking at the screen through a cellophane paper?	Check the signal cable connection.Make sure the video card is fully inserted in it's slot.
	Have the screen colors become strange after running a program or due to a crash between applications?	Reboot the computer.
	Has the video card been set properly?	Set the video card by referring to the video card manual.
The screen suddenly has become unbalanced.	Have you changed the video card or the driver?	Adjust screen image position and size using the OSD.
	Have you adjusted the resolution or frequency to the monitor?	Adjust the resolution and frequency at the video card. (Refer to the Preset Display Modes).
	The screen can be unbalanced due to the cycle of the video card signals. Readjust Position by referring to the OSD.	
The screen is out of focus or OSD cannot be adjusted.	Have you adjusted the resolution or frequency on the monitor?	Adjust the resolution and frequency of the video card. (Refer to the Preset Display Modes).
LED is blinking but no images on the screen.	Is the frequency properly adjusted when checking the Display Timing on the menu?	Adjust the frequency properly by referring to the video card manual and the Preset Display Modes. (The maximum frequency per resolution may differ from product to product.)
There are only 16 colors shown on the screen. **The screen colors have changed after changing the video card.**	Have the Windows colors been set properly?	Windows ME/2000/XP: Set the colors properly at the **Control Panel → Display → Settings**.
	Has the video card been set properly?	Set the video card by referring to the video card manual.
There is a message that reads "Unrecognized monitor, Plug & Play (VESA DDC) monitor found".	Have you installed the monitor driver?	Install the monitor driver according to the Driver Installation Instructions.
	See the video card manual to see if the Plug & Play (VESA DDC) function can be supported.	Install the monitor driver according to the Driver Installation Instructions.

Check the following items if there is trouble with the monitor.

1. check if the power cord and the video cables are properly connected to the computer.
2. Check if the computer beeps more than 3 times when booting.
   (If it does, request an after-service for the main board of the computer.)
3. If you installed a new video card or if you assembled the PC, check if the installed the adapter(video) driver and the monitor driver.
4. Check if the scanning ratio of the video screen is set at 75Hz.
   (Do not exceed 60Hz when using the maximum resolution.)
5. If you have problems in installing the adapter (video) driver, boot the computer in Safe Mode, remove the Display Adapter at the "**Control Panel→System→Device Administrator**" and then reboot the computer to reinstall the adapter (video) driver.

Note

If problems repeatedly occur, contact an authorized service center.

Q & A

Question	Answer
How can I change the frequency?	Frequency can be changed by reconfiguring the video card. Note that video card support can vary, depending on the version of the driver used. (Refer to the computer or the video card manual for details.)
How can I adjust the resolution?	Windows ME/XP/2000 : Set the resolution at the Control Panel→Display→Settings. * Contact the video card manufacturer for details.
How can I set the Power Saving function?	Windows ME/XP/2000 : Set the function at BIOS-SETUP of the computer or the screen saver. (Refer to Windows/Computer Manual).
How can I clean the outer case/LCD Panel?	Disconnect the power cord and then clean the monitor with a soft cloth, using either a cleaning solution or plain water. Do not leave any remains of the detergent nor scratch the case. Do not allow any water to go inside the monitor.

Self-Test Feature Check

Self-Test Feature Check | Warning Messages | Environment | Useful Tips

Your monitor provides a self test feature that allows you to check whether your monitor is functioning properly.

Self-Test Feature Check

1. Turn off both your computer and the monitor.
2. Unplug the video cable from the back of the computer.
3. Turn on the monitor.
   If the monitor is functioning properly, you will see a box with a border and text inside as shown in the following illustration: The three boxes inside the border are red, green and blue.

   Failure of any of the boxes to appear indicates a problem with your monitor. This box also appears during normal operation if the video cable becomes disconnected or damaged.

4. Turn off your monitor and reconnect the video cable; then turn on both your computer and the monitor.
   If your monitor screen remains blank after using the previous procedure, check your video controller and computer system; your monitor is functioning properly.

Warning Messages

If there is something wrong with the input signal, a message appears on the screen or the screen goes blank although the power indicator LED is still on. The message may indicate that the monitor is out of scan range or that you need to check the signal cable.

Environment

The location and the position of the monitor may influence the quality and other features of the monitor.

1. if there are any sub woofer speakers near the monitor, unplug and relocate the woofer to another room.
2. Remove all electronic devices such as radios, fans, clocks and telephones that are within 3 feet (one meter) of the monitor.

Useful Tips

- A monitor recreates visual signals received from the computer. Therefore, if there is trouble with the computer or the video card, this can cause the monitor to become blank, have poor coloring, noise, Video mode not supported, etc. In this case, first check the source of the problem, and then contact a service center or your dealer.

- **Judging the monitor's working condition**
  If there is no image on the screen or a **"Not Optimum Mode" "Recommanded mode 1280 x 1024 60Hz"** message comes up, disconnect the cable from the computer while the monitor is still powered on.
  - If there is a message coming up on the screen or if the screen goes white, this means the monitor is in working condition.
  - In this case, check the computer for trouble.

General

General	
Model Name	SAMTRON 94V
LCD Panel	
Size	19inch Diagonal
Display area	372.32 (H) x 301.56 (V)
Pixel Pitch	0.294mm (H) x 0.294mm (V)
Type	a-si TFT active matrix
Synchronization	
Horizontal	31 ~ 81 kHz
Vertical	56 ~ 75 Hz
Display Color	
16,194,277 Colors	
Resolution	
Optimum resolution	1280 x 1024@60 Hz
Maximum resolution	1280 x 1024@75 Hz
Input Signal, Terminated	
RGB Analog , 0.7Vp-p Positive at 75 ohms Separate H/V sync, Composite sync, SOG, TTL level positive or negative.	
Maximum Pixel Clock	
135 MHz	
Power Supply	
AC 100 ~ 240 VAC(+/- 10%), 60/50 Hz ± 3Hz	
Signal Cable	
15pin-to-15pin D-sub cable, Detachable	
Power Consumption(maximum)	
Less than 38W	
Dimensions (WxDxH)/ Weight	

428.0 X 61.8 X 357.5 mm / 16.9 x 2.4 x 14.1 inch (Without Stand)
428.0 X 204.0 X 433.0 mm / 16.9 x 8.0 x 17.0 inch (With Basic Stand) / 6.25kg

VESA Mounting Interface

100mm x 100mm (for use with Specialty(Arm) Mounting hardware.)

Environmental considerations

Operating	Temperature: 50°F ~ 104°F(10°C ~ 40°C) Humidity: 10% ~ 80%, non-condensing
Storage	Temperature: -4°F ~113°F (-20°C ~ 45°C) Humidity: 5% ~ 95%, non-condensing

Plug and Play Capability

This monitor can be installed on any Plug & Play compatible system. Interaction of the monitor and computer systems will provide the best operating conditions and monitor settings. In most cases, monitor installation will proceed automatically, unless the user wishes to select alternate settings.

Note: Design and specifications are subject to change without prior notice.

PowerSaver

This monitor has a built-in power management system called PowerSaver. This system saves energy by switching your monitor into a low-power mode when it has not been used for a certain amount of time. The monitor automatically returns to normal operation when you press a key on the keyboard. For energy conservation, turn your monitor OFF when it is not needed, or when leaving it unattended for long periods. The PowerSaver system operates with a VESA DPMS compliant video card installed in your computer. Use a software utility installed on your computer to set up this feature.

State	Normal Operation	Power saving mode EPA/ENERGY 2000	Power Switch off
Power Indicator	Green	Green, Blinking	Black
Power Consumption	Less than 38W	Less than 1W (Off-mode)	Less than 1W (230 Vac)

This monitor is EPA ENERGY STAR® compliant and ENERGY2000 compliant when used with a computer equipped with VESA DPMS functionality.
As an ENERGY STAR® Partner, SAMSUNG has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

Preset Timing Modes

If the signal transferred from the computer is the same as the following Preset Timing Modes, the screen will be adjusted automatically. However, if the signal differs, the screen may go blank while the power LED is on. Refer to the video card manual and adjust the screen as follows.

Table 1. Preset Timing Modes

Display Mode	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
IBM, 640 x 350	31.469	70.086	25.175	+/-
IBM, 640 x 480	31.469	59.940	25.175	-/-

IBM, 720 x 400	31.469	70.087	28.322	-/+
MAC, 640 x 480	35.000	66.667	30.240	-/-
MAC, 832 x 624	49.726	74.551	57.284	-/-
MAC, 1152 x 870	68.681	75.062	100.00	-/-
VESA, 640 x 480	37.500	75.000	31.500	-/-
VESA, 640 x 480	37.861	72.809	31.500	-/-
VESA, 800 x 600	35.156	56.250	36.000	-/-
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 800 x 600	46.875	75.000	49.500	+/+
VESA, 800 x 600	48.077	72.188	50.000	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1024 x 768	56.476	70.069	75.000	-/-
VESA, 1024 x 768	60.023	75.029	78.750	+/+
VESA, 1152 x 864	67.500	75.000	108.00	+/+
VESA, 1280 x 1024	63.981	60.020	108.00	+/+
VESA, 1280 x 1024	79.976	75.025	135.00	+/+

Horizontal Frequency

The time to scan one line connecting the right edge to the left edge of the screen horizontally is called Horizontal Cycle and the inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz

Vertical Frequency

Like a fluorescent lamp, the screen has to repeat the same image many times per second to display an image to the user. The frequency of this repetition is called Vertical Frequency or Refresh Rate. Unit: Hz

Service

The address and phone number of the company can be changed without previous notice.

SAMTRON CANADA

SAMSUNG ELECTRONICS CANADA INC.
7037 FINANCIAL DRIVE
MISSISSAUGA, ONTARIO L5N 6R3
TEL : 1-800-726-7864
FAX : 905-542-1199

SAMTRON EUROPE

SAMSUNG ELECTRONICS GMBH
SAMSUNG-HAUS, AM KRONBERGER HANG 6
65824 SCHWALBACH/TS., GERMANY
TEL: 49 (0180) 5121213*
FAX: 49 (0180) 5121214*
* DM 0,24/MIN.

SAMTRON MÉXICO :

SAMSUNG ELECTRONICS MÉXICO. S.A. de C.V.
Vía Lopez Portillo No. 6, Col. San Fco. Chilpan
Tultitlán, Estado de México, C.P. 54940
Tel: 01-55-5747-5100 / 01-800-726-7864
Fax: 01-55-5747-5202 / 01-800-849-1743
RFC: SEM950215S98
http://www.samsung.com.mx/

IMPORTADO POR: SAMSUNG ELECTRONICS MÉXICO. S.A. de C.V.
Vía Lopez Portillo No. 6, Col. San Fco. Chilpan
Tultitlán, Estado de México, C.P. 54940
Tel: 01-55-5747-5100 / 01-800-726-7864

EXPORTADO POR: Samsung Electronics CO.,LTD.
416, Mae tan-3dong, Yeongtong - gu,
Suwon City, Gyeonggi-do Korea

SAMTRON SEOUL

15TH FL, JOONGANG DAILY NEWS BLDG. 7, SOONHWA-DONG,CHUNG-GU,
SEOUL, KOREA, 100-759
TEL : (82-2) 727-3114

SAMTRON SWEDEN

SAMSUNG ELECTRONICS SYENSKA, AB
BOX 713, S- 194 27 UPPLANDS VÄSBY
TEL : 468- 590- 966- 00 FAX : 468- 590- 966- 50

SAMTRON TOKYO

17TH, HAMACHO CENTER BLDG. 2-31-1, NIHONBASHI-HAMACHO,
CHOU-KU, TOKYO 103, JAPAN
TEL : (81-3) 5641-9860 FAX : (81-3) 5641-9861

SAMTRON U.S.A.

SAMTRON COMPUTER PRODUCTS CUSTOMER SERVICE
400 Valley Road Suite 201, Mt. Arlington, NJ 07856
TEL : 973-601-6200, FAX : 973-601-6001
1-800-SAMTRON (1-800-726-8766)

Terms

Dot Pitch
The image on a monitor is composed of red, green and blue dots. The closer the dots, the higher the resolution. The distance between two dots of the same color is called the 'Dot Pitch'. Unit: mm

Vertical Frequency
The screen must be redrawn several times per second in order to create and display an image for the user. The frequency of this repetition per second is called Vertical Frequency or Refresh Rate. Unit: Hz

Example:
If the same light repeats itself 60 times per second, this is regarded as 60 Hz.

Horizontal Frequency
The time to scan one line connecting the right edge to the left edge of the screen horizontally is called Horizontal Cycle. The inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz

Interlace and Non-Interlace Methods
Showing the horizontal lines of the screen from the top to the bottom in order is called the Non-Interlace method while showing odd lines and then even lines in turn is called the Interlace method. The Non-Interlace method is used for the majority of monitors to ensure a clear image. The Interlace method is the same as that used in TVs.

Plug & Play
This is a function that provides the best quality screen for the user by allowing the computer and the monitor to exchange information automatically. This monitor follows the international standard VESA DDC for the Plug & Play function.

Resolution
The number of horizontal and vertical dots used to compose the screen image is called 'resolution'. This number shows the accuracy of the display. High resolution is good for performing multiple tasks as more image information can be shown on the screen.

Example: If the resolution is 1280 x 1024 , this means the screen is composed of 1280 horizontal dots (horizontal resolution) and 1024 vertical lines (vertical resolution).

For Better Display

1. Adjust computer resolution and screen injection rate (refresh rate) oncomputer as described below to enjoy the best quality of picture. You can have an uneven quality of picture in the screen if the best quality of picture is not provided in TFT-LCD.

- Resolution: 1280 x 1024
- Vertical frequency (refresh rate): 60 Hz

TFT LCD panel manufactured by using advanced semiconductor technology with precision of 1ppm (one millionth) above is used for this product. But the pixels of RED, GREEN, BLUE and WHITE color seem to be bright sometimes or some of black pixels could be seen. This is not from bad quality and you can use it without uneasiness.

- For example, the number of TFT LCD sub pixels that is contained in this product are 3,932,160.

3. When you clean the monitor and the panel outside, please apply the recommended small amount of cleaner by using soft and dry cloth and polish it. Let LCD area not to be forced but to be scrubbed out softly.
   If excessive force is applied, you can have a stain on it.

4. If you are not satisfied with the quality of picture, you can get better quality of picture by executing "auto adjustment function" in display screen that is appeared as window termination button is pressed.
   If there's still noise after automatic adjustment, use FINE/COARSE adjustment function.

5. If you view a fixed screen for an extended period of time, residual image or blurriness may appear. Change the mode to energy save or set a screensaver to moving picture when you need to be away from the monitor for an extended period of time.

Authority

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FCC Information | IC Compliance Notice | MPR II Compliance
European Notice (Europe only) | PCT Notice | VCCI |
TCO'95-Ecological requirements for personal computers (TCO'95 applied model only)
TCO'99-Ecological requirements for personal computers (TCO'99 applied model only)
TCO'03-Ecological requirements for personal computers (TCO'03 applied model only)
TCO'03 Recycling Information (TCO'03 applied model only)
Medical Requirement
Mercury Statement (LCD Monitor, LCD TV, DLP Projection TV, Projector for USA only)

FCC Information

User Instructions
The Federal Communications Commission Radio Frequency Interference Statement includes the following warning:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television receptions, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

User Information
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. If necessary, consult your dealer or an experienced radio/television technician for additional suggestions. You may find the booklet called How to Identify and Resolve Radio/TV Interference Problems helpful. This booklet was prepared by the Federal Communications Commission. It is available from the U.S. Government Printing Office, Washington, DC 20402, Stock Number 004-000-00345-4.

The party responsible for product compliance:
SAMSUNG ELECTRONICS CO., LTD
America QA Lab of Samsung
3351 Michelson Drive,
Suite #290, Irvine, CA92612 USA
Tel) 949-975-7310
Fax) 949-922-8301

Warning
User must use shielded signal interface cables to maintain FCC compliance for the product.

Provided with this monitor is a detachable power supply cord with IEC320 style terminations. It may be suitable for connection to any UL Listed personal computer with similar configuration. Before making the connection, make sure the voltage rating of the computer convenience outlet is the same as the monitor and that the ampere rating of the computer convenience outlet is equal to or exceeds the monitor voltage rating.
For 120 Volt applications, use only UL Listed detachable power cord with NEMA configuration 5-15P type (parallel blades) plug cap. For 240 Volt applications use only UL Listed Detachable power supply cord with NEMA configuration 6-15P type (tandem blades) plug cap.

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IC Compliance Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations of ICES-003.

Cet appareil Numérique de classe B respecte toutes les exigences du Règlemont NMB-03 sur les équipements produisant des interférences au Canada.

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MPR II Compliance

This monitor complies with SWEDAC(MPR II) recommendations for reduced electric and magnetic fields.

European Notice(Europe Only)

Products with the CE marking comply with the EMC Directive(89/336/EEC), (92/31/EEC), (93/68/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European Norms:

- EN55022:1998+A1:2000 - Radio Frequency Interference
- EN55024:1998 - Electromagnetic Immunity
- EN61000-3-2:1995+A1/A2:1998 - Power Line Harmonics
- EN61000-3-3:1995 - Voltage Fluctuations

PCT Notice

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VCCI

This is a Class B product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

TCO'95-Ecological requirements for personal computers (TCO'95 applied model only)

AB general requirements
AB2 Written Eco-document acompanying the products
Congratulations! You have just purchased a TCO'95 approved and labelled product! Your choice has provided you with a product developed for professional use. Your purchase has also contributed to reducing the burden on the environment and to the further development of environmentally-adapted electronic products.

Why do we have environmentally-labelled monitors?
In many countries, environmental labelling has become an established method for encouraging the adaptation of goods and services to the environment.The main problem as far as monitors and other electronic equipment are concerned is that environmentally harmful substances are used both in the products and during their manufacture. Since it has not been possible so far for the majority of electronic equipment to be recycled in a satisfactory way, most of these potentially damaging substances sooner or later enter Nature.

There are also other characteristics of a monitor, such as energy consumption levels, that are important from both the working and natural environment viewpoints. Since all types of conventional electricity generation have a negative effect on the environment (acidic and climate-influencing emissions, radioactive waste, etc.) it is vital to conserve energy. Electronic equipment in offices consumes an enormous amount of energy, since it is often routinely left running continuously.

What does labelling involve?
This product meets the requirements for the TCO'95 scheme, which provides for international environmental labelling of monitors. The labelling scheme was developed as a joint effort by the TCO (The Swedish Confederation of Professional Employees), Naturskyddsforeningen (The Swedish Society for Nature Conservation) and NUTEK (The National Board for Industrial and Technical Development in Sweden).

The requirements cover a wide range of issues: environment, ergonomics, usability, emission of electrical and magnetic fields, energy consumption and electrical and fire safety.

The environmental demands concern among other things restrictions on the presence and use of heavy metals, brominated and chlorinated flame retardants, CFCs (freons), and chlorinated solvents. The product must be prepared for recycling and the manufacturer is obliged to have an environmental plan, which must be adhered to in each country where the company conducts its operations policy. The energy requirements include a demand that the monitor after a certain period of inactivity shall reduce its power consumption to a lower level, in one or more stages. The length of time to reactivate the monitor shall be reasonable for the user.

Labelled products must meet strict environmental demands, for example in respect of the reduction of electric and magnetic fields, along with physical and visual ergonomics and good usability.

TCO Development Unit 1996-11-29
On the page this folder you will find a brief summary of the environmental requirements met by this product.
The complere environmental criteria document may be ordered from:
TCO Development Unit
S-11494 Stockholm
Sweden
Fax: +46 8 782 92 07
E-mail (Internet): development@tco.se
Current information regarding TCO'95-approved and labelled products may also be obtained via the Internet, using the address:
http://www.tco-info.com/
TCO'95 is a co-operative project between(3 logos)

Environmental Requirements
Brominated flame retardants are present in printed circuit boards, cables, wires, casings and housings. In turn, they delay the spread of fire. Up to thirty percent of the plastic in a computer casing can consist of flame retardant substances. These are related to another group of environmental toxins, PCBs, which are suspected to give rise to similar harm, including reproductive damage in fish eating birds and mammals, due to the bioaccumulative processes. Flame retardants have been found in human blood and researchers fear that disturbances in foetus development may occur.
- TCO'95 demand requires that plastic components weighing more than 25 grams must not contain organically bound chlorine and bromine.

Lead
Lead can be found in picture tubes, display screens, solders and capacitors. Lead damages the nervous system and in higher doses, causes lead poisoning.

- TCO'95 requirement Permits the inclusion of lead since no replacement has yet been developed.

Cadmium
Cadmium is present in rechargeable batteries and in the colour generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses.

- TCO'95 requirement states that batteries may not contain more than 25 ppm (parts per million) of cadmium. The colour-generating layers of display screens must not contain any cadmium.

Mercury
Mercury is sometimes found in batteries, relays and switches. Mercury damages the nervous system and is toxic in high doses.

- TCO'95 requirement states that batteries may not contain more than 25 ppm (parts per million) of mercury. It also demands that no mercury is present in any of the electrical or

electronics components concerned with the display unit.

CFCs (freons)
CFCs (freons) are sometimes used for washing printed circuit boards and in the manufacturing of expanded foam for packaging. CFCs break down ozone and thereby damage the ozone layer in the stratosphere, causing increased reception on Earth of ultraviolet light with consequent increased risks of skin cancer (malignant melanoma).

- The relevant TCO'95 requirement: Neither CFCs nor HCFCs may be used during the manufacturing of the product or its packaging.

TCO'99-Ecological requirements for personal computers (TCO'99 applied model only)

Congratulations!
You have just purchased a TCO'99 approved and labelled product! Your choice has provided you with a product developed for professional use. Your purchase has also contributed to reducing the burden on the environment and also to the further development of environmentally adapted electronics products.

This product meets the requirements for the TCO'99 scheme which provides for an international environmental and quality labelling labelling of personal computers. The labelling scheme was developed as a joint effort by the TCO(The Swedish Confederation of Professional Employees), Svenska Naturskyddsforeningen(The Swedish Society for Nature Conservation), Statens Energimyndighet(The Swedish National Energy Administration) and SEMKO AB.

The requirements cover a wide range of issuse: environment, ergonomics, usability, reduction of electric and magnetic fields, energy consumption and electrical safety.

Why do we have environmentally labelled computers?
In many countries, environmental labelling has become an established method for encouraging the adaptation of goods and services to the environment. The main problem, as far as computers and other electronics equipment are concerned, is that environmentally harmful substances are used both in the products and during their manufacture. Since it is not so far possible to satisfactorily recycle the majority of electronics equipment, most of these potentially damaging substances sooner or later enter nature.

There are also other characteristics of a computer, such as energy consumption levels, that are important from the viewpoints of both the work (internal) and natural (external) environments. Since all methods of electricity generation have a negative effect on the environment (e.g. acidic and climate-influencing emissions, radioactive waste), it is vital to save energy. Electronics equipment in offices is often left running continuously and thereby consumes a lot of energy.

What does labelling involve?
The environmental demands has been developed by Svenska Naturskyddsforeningen (The Swedish Society for Nature Conservation). These demands impose restrictions on the presence and use of heavy metals, brominated and chlorinated flame retardants, CFCs(freons) and chlorinated solvents, among other things. The product must be prepared for recycling and the manufacturer is obliged to have an environmental policy which must be adhered to in each country where the company implements its operational policy.

The energy requirements include a demand that the computer and/or display, after a certain period of inactivity, shall reduce its power consumption to a lower level in one or more stages. The length of time to reactivate the computer shall be reasonable for the user.

Below you will find a brief summary of the environmental requirements met by this product. The complete environmental criteria document may be ordered from:

TCO Development
SE-114 94 Stockholm, Sweden
Fax: +46 8 782 92 07
Email (Internet): development@tco.se

Current information regarding TCO'99 approved and labelled products may also be obtained

via the Internet, using the address: http://www.tco-info.com/

Environmental requirements
Flame retardants
Flame retardants are present in printed circuit boards, cables, wires, casings and housings. Their purpose is to prevent, or at least to delay the spread of fire. Up to 30% of the plastic in a computer casing can consist of flame retardant substances. Most flame retardants contain bromine or chloride, and those flame retardants are chemically related to another group of environmental toxins, PCBs. Both the flame retardants containing bromine or chloride and the PCBs are suspected of giving rise to severe health effects, including reproductive damage in fish-eating birds and mammals, due to the bio-accumulative* processes. Flame retardants have been found in human blood and researchers fear that disturbances in foetus development may occur.

The relevant TCO'99 demand requires that plastic components weighing more than 25 grams must not contain flame retardants with organically bound bromine or chlorine. Flame retardants are allowed in the printed circuit boards since no substitutes are available.

Cadmium**
Cadmium is present in rechargeable batteries and in the colour-generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses. The relevant TCO'99 requirement states that batteries, the colour-generating layers of display screens and the electrical or electronics components must not contain any cadmium.

Mercury**
Mercury is sometimes found in batteries, relays and switches. It damages the nervous system and is toxic in high doses. The relevant TCO'99 requirement states that batteries may not contain any mercury. It also demands that mercury is not present in any of the electrical or electronics components associated with the labelled unit. There is however one exception. Mercury is, for the time being, permitted in the back light system of flat panel monitors as today there is no commercially available alternative. TCO aims on removing this exception when a Mercury free alternative is available.

CFCs (freons)
The relevant TCO'99 requirement states that neither CFCs nor HCFCs may be used during the manufacture and assembly of the product. CFCs (freons) are sometimes used for washing printed circuit boards. CFCs break down ozone and thereby damage the ozone layer in the stratosphere, causing increased reception on earth of ultraviolet light with e.g. increased risks of skin cancer (malignant melanoma) as a consequence.

Lead**
Lead can be found in picture tubes, display screens, solders and capacitors. Lead damages the nervous system and in higher doses, causes lead poisoning. The relevant TCO'99 requirement permits the inclusion of lead since no replacement has yet been developed.

TCO'03-Ecological requirements for personal computers (TCO'03 applied model only)

Congratulations!
The display you have just purchased carries the TCO'03 Displays label. This means that your display is designed, manufactured and tested according to some of the strictest quality and environmental requirements in the world. This makes for a high performance product, designed with the user in focus that also minimizes the impact on our natural environment.

Some of the features of the TCO'03 Display requirements:

Ergonomics
Good visual ergonomics and image quality in order to improve the working environment for the user and to reduce sight and strain problems. Important parameters are luminance, contrast, resolution, reflectance, colour rendition and image stability.

Energy

- Energy-saving mode after a certain time ?beneficial both for the user and the environment
- Electrical safety

Emissions

- Electromagnetic fields
- Noise emissions

Ecology

- The product must be prepared for recycling and the manufacturer must have a certified environmental management system such as EMAS or ISO 14 000
- Restrictions on
  - o chlorinated and brominated flame retardants and polymers
  - o heavy metals such as cadmium, mercury and lead.

The requirements included in this label have been developed by TCO Development in cooperation with scientists, experts, users as well as manufacturers all over the world. Since the end of the 1980s TCO has been involved in influencing the development of IT equipment in a more user-friendly direction. Our labelling system started with displays in 1992 and is now requested by users and IT-manufacturers all over the world.

For more information, Please visit
www.tcodevelopment.com

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TCO'03 Recycling Information (TCO'03 applied model only)

For recycling information for TCO'03 certified monitors, for the residents in the following countries, please contact the company corresponding to your region of residence. For those who reside in other countries, please contact a nearest local Samsung dealer for recycling information for the products to be treated in environmentally acceptable way.

	[U.S.A. Residents Only]	[European Residents Only]		
	U.S.A.	SWEDEN	NORWAY	GERMANY
COMPANY	Solid Waste Transfer & Recycling Inc	ELKRETSEN	Elektronikkretur AS	vfw AG
ADDRESS	442 Frelinghuysen Ave Newark, NJ 07114	ELKRETSEN Box 1357, 111 83 Stockholm Barnhusgatan 3, 4 tr.	6454 Etterstad 0602 Oslo Fyrstikkalln 3B	Max Plank Strasse 42 50858 Collogne Germany
TELEPHONE	973-565-0181	08-545 212 90	23 06 07 40	49 0 2234 9587 - 0
FAX	Fax: 973-565-9485	08-545 212 99	23 06 07 41	
E-MAIL	none	info@el-kretsen.se	adm@elektronikkretur.no	vfw.info@vfw-ag.de
HOME PAGE	http://www.bcua.org/Solid Waste_Disposal.htm	http://www.el-kretsen.se/	http://www.elretur.no/	

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Medical Requirement

Classifications:
In accordance with UL 2601-1/IEC 60601-1, the product is cssified as Continuous duty Class I equipment, which is not protected against ingress of liquids. The product is not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.

EMC

This equipment has been tested and found to comply with the limits for medical devices to the IEC 601-1-2:1994. These limits are designed to provide reasonable protection against harmful interference in a typical medical installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to other devices in the vicinity. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to other devices, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving device.
- Increase the separation between the equipment.
- Connect the equipment into an outlet on a circuit different from that to which the other device(s) are connected.
- Consult the manufacturer or field service technician for help.

Video In / RS 232 / Video Out
Accessories equipment connected to the analog and digital interfaces must be certified to the respective IEC standards (i.e. IEC 950 for data processing equipment and IEC 601-1 for medical equipment.) Furthermore all configurations shall comply with the system standard IEC 601-1-1. Everybody who connects additional equipment to the signal input part or signal output part configures a medical system, and is therefore, responsible that the system complies with the requirements of the system standard IEC 601-1-1. If in doubt, consult the technical services department or your local representative.

Transport and Storage Limitations:
Temperature Range of -40˚C to +70˚C
Relative Humidity of 10 -95%, non-condensing

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* Bio-accumulative is defined as substances which accumulate within living organisms.
** Lead, Cadmium and Mercury are heavy metals which are Bio-accumulative.

Mercury Statement (LCD Monitor, LCD TV, DLP Projection TV, Projector for USA only)

LAMP(S) INSIDE THIS PRODUCT CONTAIN MERCURY AND MUST BE RECYCLED OR DISPOSED OF ACCORDING TO LOCAL, STATE OR FEDERAL LAWS
For details see lamprecycle.org, eiae.org, or call 1-800-Samsung

PRODUCT INFORMATION (Image Retention Free)

LCD Monitors and TVs may have image retention when switching from one image to another especially after displaying a stationary image for a long time.
This guide is to demonstrate correct usage of LCD products in order to protect them from Image retention.

- **What is Image retention ?**
  During normal operation of a LCD panel, pixel image retention doesn't occur. However, if the same image is displayed for a long time, a slight difference in electric charge accumulates between the two electrodes which encase the liquid crystal. This may cause the liquid crystal to build up in a certain areas of the display. Thus, the previous image is retained when switching to a new video image. All display products, including LCD,are subject to image retention. This is not a product defect.

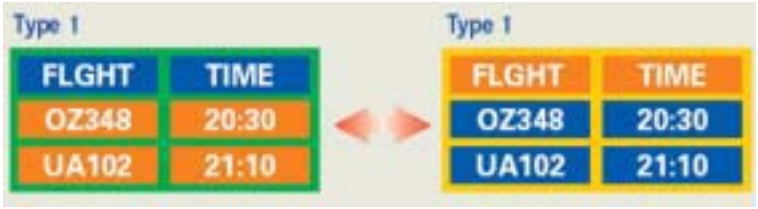
  Please follow the suggestions below to protect your LCD from image retention

- **Power Off, Screen Saver, or Power Save Mode**
  Ex)
  - Turn the power off when using a stationary pattern.
    - Turn the power off for 4 hours after 24 hours in use
    - Turn the power off for 2 hours after 12 hours in use
  - Use a Screen saver if possible
    - Screen saver in one color or a moving image is recommended.
  - Set the Monitor to power off with the PC Display Properties Power Scheme.

- **Suggestions for specific applications**
  Ex) Airports, Transit Stations, Stock Markets, Banks, and Controlling Systems
  We recommend that you follow set up of your display system program as below:

- **Display Information together with Logo or Moving image cycle.**
  Ex) Cycle : Display Information for 1 hour followed by a
  Display Logo or moving image for 1 minute.

- **Change the Color Information periodically (Use 2 different colors).**
  Ex) Rotate the Color Information with 2 colors every 30 minutes.



Avoid using a combination of characters and background color with large difference in luminance.
Avoid using Grey colors, which can cause Image retention easily.

- Avoid: Colors with big difference in luminance (Black & White, Grey)

Ex)

- Recommended settings: Bright colors with little difference in luminance

- Change the characters color and background color every 30 minutes

Ex)

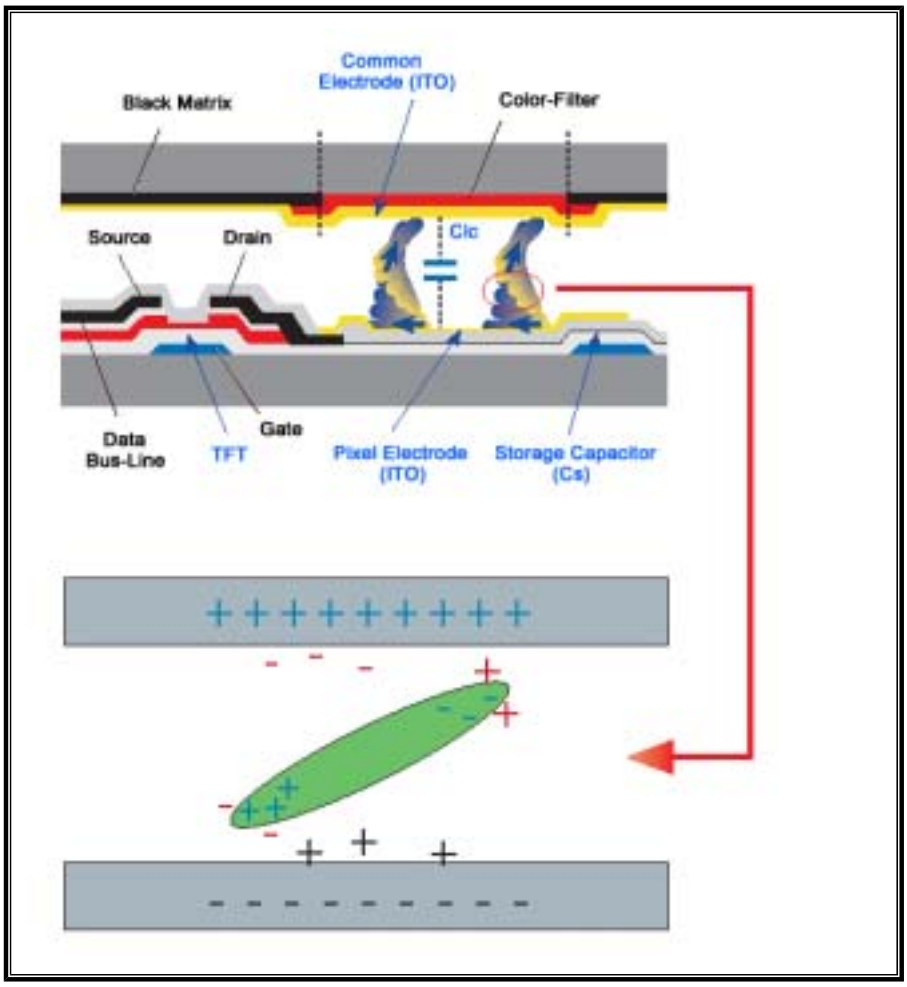
- Every 30 minutes, change the characters with movement.

Ex)

- **The best way to protect your monitor from Image retention is to set your PC or System to operate a Screen Saver program when you are not using it.**

  Image retention may not occur when a LCD panel is operated under normal conditions.

  Normal conditions are defined as continuously changing video patterns. When the LCD panel is operated for a long time with a fixed pattern (-over 12 hours-), there may be slight difference in voltage between electrodes that work the liquid crystal (LC) in a pixel. The voltage difference between electrodes increases with time, forcing the liquid crystal to lean. When this occurs, the previous image may be seen when the pattern is changed.
  To prevent this, the accumulated voltage difference must be decreased.



- Our LCD Monitor satisfies ISO13406-2 Pixel fault Class II